

mf



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/694,411	10/23/2000	Dee Gardiner	00261-12378	9053

7590 08/28/2006

Steve M. Perry  
THORPE, NORTH & WESTERN, LLP  
P.O. Box 1219  
Sandy, UT 84091-1219

EXAMINER

PRENDERGAST, ROBERTA D

ART UNIT	PAPER NUMBER
----------	--------------

2628

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/694,411		GARDINER ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Roberta Prendergast		2628	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

**Art Unit Designation has changed from 2671 to 2628**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 10, 11 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kajiya et al. U.S. Patent No. 5864342.

Referring to claim 10, Kajiya et al. teaches a method for enabling a single pixel frame buffer (column 6, lines 15-29, i.e. a single rasterization buffer is understood to be a single pixel frame buffer) for simultaneous rendering and display in a computer image generator comprising the steps of a) dividing a geometry buffer into a plurality of screen

bins (column 10, lines 35-42, i.e. the scene/image is divided into pixel regions called chunks and the geometry is pre-sorted into bins based on which chunk the geometry will be rendered into); (b) storing primitives in each screen bin the primitives touch (column 10, lines 40-44; columns 15-16, lines 59-2, i.e. the geometry is pre-sorted into bins based on which chunk the geometry will be rendered into and geometry that overlaps a chunk boundary is referenced in each chunk it is visible in); (c) rendering the screen bins by row from top to bottom, into the pixel frame buffer (column 8, lines 45-49; column 41, lines 20-27, i.e. the chunks are rendered from left-to-right, top-to-bottom scan order); and (d) displaying at least one row of screen bins rendered before the rendering of all the screen bins has completed, wherein the displaying of the screen bins takes place after a selected portion of the screen bins for a current field have been rendered (column 6, lines 15-29; column 60, lines 24-47 and 63-67; column 61, lines 11-13, i.e. the step of displaying at least one row of screen bins is initiated after at least one row has completed rendering).

Referring to claim 11, the rationale for the rejection of claim 10 is incorporated herein, Kajiya et al. teaches a method as in claim 10, further comprising the step of reducing the transport delay without allowing the display step to overlap a rendering envelope (Fig. 22; column 56, lines 11-40).

Referring to claim 13, the rationale for the rejection of claim 10 is incorporated herein, Kajiya et al. teaches a method as in claim 10 further comprising the step of rendering at least one row of screen bins before the display step begins (column 6, lines 15-29; column 60, lines 24-47 and 63-67; column 61, lines 11-13, i.e. the step of

displaying at least one row of screen bins is initiated after at least one row has completed rendering).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiya et al. in view of Grigor et al. U.S. Patent No. 6853381.

Referring to claim 12, the rationale for the rejection of claim 10 is incorporated herein, Kajiya et al. teaches a method as in claim 10 but does not specifically teach the step of reducing the transport delay and allowing the display step to overlap a rendering envelope.

Grigor et al. teaches this limitation (Abstract; Figs. 1 and 8; column 3, lines 13-33; column 8, lines 32-67, i.e. individual display lines comprising a plurality of pixels are rendered and stored in the frame buffer in a memory location only if the location has been previously accessed for display).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Kajiya et al. to include the teachings of Grigor et al. thereby overcoming the problems associated with single frame buffers such as tearing, choppy video/graphics and stalling (columns 1-2, lines 32-13)

by allowing the frame buffer to be utilized more efficiently (column 3, lines 46-50) and allowing for an efficient way to receive primitives to be displayed, while assuring the data integrity of the frame buffer (columns 9-10, lines 66-10).

Referring to claim 14, the rationale for the rejection of claim 10 is incorporated herein, Kajiya et al. teaches a method as in claim 10 further comprising but does not specifically teach the step of reducing the transport delay by allowing the display step to overlap a rendering envelope without allowing pixels from a previous field to be displayed.

Grigor et al. teaches this limitation (Abstract; Figs. 1 and 8; column 3, lines 13-33; column 5, lines 13-25 and 56-67; column 8, lines 32-67, i.e. individual display lines comprising a plurality of pixels are rendered and stored in the frame buffer in a memory location only if the location has been previously accessed for display and the PIXEL OFFSET and LINE INDICATOR are utilized to prevent the display of previously displayed pixels).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Kajiya et al. to include the teachings of Grigor et al. thereby overcoming the problems associated with single frame buffers such as tearing, choppy video/graphics and stalling (columns 1-2, lines 32-13) by allowing the frame buffer to be utilized more efficiently (column 3, lines 46-50) and allowing for an efficient way to receive primitives to be displayed, while assuring the data integrity of the frame buffer (columns 9-10, lines 66-10).

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to single frame buffers.

Drako et al. U.S. Patent No. 5371513

Drako et al. U.S. Patent No. 5451981

Gaglianello et al. U.S. Patent No. 5526024

Kato et al. U.S. Patent No. 6043811

The following patents are cited to further show the state of the art with respect to binning.

Prince U.S. Patent No. 5617113

Zhu et al. U.S. Patent No. 6344852

Heeschen et al. U.S. Patent No. 6380935

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberta Prendergast whose telephone number is (571) 272-7647. The examiner can normally be reached on M-F 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RP 8/15/2006

  
ULKA CHAUHAN  
SUPERVISORY PATENT EXAMINER